DOCUMENT RESUME

ED 414 876 IR 018 644

AUTHOR	Vopal, James R.
TITLE	A Study of the Correlation between In-House Computer Training and Middle School Teachers' Use of Computers in the Classroom.
PUB DATE	1997-00-00
NOTE	71p.; Masters Thesis, Caldwell College.
PUB TYPE	Dissertations/Theses - Masters Theses (042) -- Tests/Questionnaires (160)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Computer Software; *Computer Uses in Education; Curriculum Development; Educational Technology; Faculty Development; *Inservice Teacher Education; *Instructional Materials; Intermediate Grades; Junior High Schools; Microcomputers; *Middle Schools; Science Education
IDENTIFIERS	*Computer Use; *Middle School Teachers; Technology Utilization

ABSTRACT

Much has been studied and written in the last several years about computer technology in the classroom, teacher training in computer applications, and teacher use of the computer in the classroom. An evaluation was conducted of a school-based computer course on classroom applications with an emphasis on science material above elementary level. The course was designed to provide teachers with a preliminary knowledge of the Macintosh computer, available software, and applications. A pre-test, post-test, and computer course evaluation was given to 19 middle school teachers in a suburban New Jersey school to determine whether a correlation exists between in-house computer training and teachers' computer use in the classroom. The findings indicate that a correlation exists and that the participants liked taking the course and now have a better understanding of how to use the computer as a teaching tool. Appendices include a request for permission from the instructor of the in-house computer class; teachers' computer assessment questionnaire, computer course assessment, and evaluation of instructor and course; and e-mail requests and responses for permission to use other scholars' related papers. (Contains 33 references.) (Author/SWC)

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Advisor: Dr. Cordelia R. Twomey

ED 414 876

A STUDY OF THE CORRELATION BETWEEN IN-HOUSE COMPUTER TRAINING AND MIDDLE SCHOOL TEACHERS' USE OF COMPUTERS IN THE CLASSROOM

James R. Vopal

Program in Curriculum and Instruction

Submitted in partial fulfillment
of the requirements for the degree of
Master of Arts in the
Graduate Program
Caldwell College
1997

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ABSTRACT

A Study of the Correlation Between In-House Computer Training and Middle School Teachers' Use of Computers in the Classroom. Vopal, James R., 1997: Thesis, Caldwell College, M.A. Program in Curriculum and Instruction.

Descriptors: Teacher Training/Staff Development/Computer-based Instruction/Computerphobia/Inservice/Teacher's Attitude Toward Computers/Instructional Technology/Teacher Computer Usage

Much has been studied and written in the last several years about computer technology in the classroom, teacher training in computer application, and teacher use of the computer in the classroom. An evaluation was conducted of a school-based computer course on classroom applications with an emphasis on science material above elementary. The course was designed to provide teachers with a preliminary knowledge of the Macintosh computer, available software, and application. A pre-test, post-test, and computer course evaluation was given to 19 middle school teachers in a suburban New Jersey school to determine whether a correlation exists between in-house computer training and their computer use in the classroom. The findings indicated that a correlation exists and that the participants liked taking the course and now have a better understanding of how to use the computer as a teaching tool.

ACKNOWLEDGMENTS

I am deeply grateful to my family for their never-ending love, support, and encouragement during the writing of this thesis.

I would like to thank Dr. Adrienne O'Neill, professor, mentor, and friend for her confidence and guidance.

A very special thanks goes to Dr. Cordelia Twomey, professor, mentor, and friend for all her advice, patience, guidance, and support during this project. Her encouragement kept me going.

Much gratitude goes out to my colleagues for their assistance during this project. Your efforts are greatly appreciated.

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CHAPTER I

THE PROBLEM AND ITS SETTING

Much has been studied and written in the last several years about computer technology in the classroom, teacher training in computer application, and teacher use of the computer in the classroom. Many non-computer classroom teachers have neither the knowledge nor the confidence to teach basic computer skills to their students or use the computer as a teaching tool (Piotrowski, 1992).

Background Statement

Hannafin (1993), Piotrowski (1992), Wild (1996), Zammit (1992), and other researchers have come to the same conclusions regarding teacher training and teacher use of the computer as an instructional tool. Studies have been conducted to determine why there is such wide spread resistance by teachers to use computers in the classroom as well as resistance to be trained properly in their use. Surveys have been conducted that show factors that facilitate or hinder the use of computers in the classroom.

Educators and researchers conclude that in-service training, staff-development, and on-going computer support will help teachers overcome their resistance to computer training and using computers as an instructional tool in the classroom.

Purpose of the Study

The purpose of this study is to show the correlation between school-based computer training and middle school teachers' use of computers in the classroom.

Need for the Study

It has been shown that as society continues to rely more and more on computers, it will be difficult to get a job in today's marketplace without computer knowledge. Teachers need to become part of this computer age and get on "the information superhighway" so their students will be prepared for the 21st Century. However, there are many non-computer classroom teachers who have neither the knowledge nor the confidence to teach basic computer skills to their students or use the computer as a teaching tool.

It is evident that there are many teachers who are resistant to computer training and computer use in the classroom as an instructional tool. Unfortunately, most of our current teachers are not trained in computers and have not received any, or at least very little, computer training since starting their teaching career (Piotrowski, 1992). With proper training, teachers cannot only instruct their students in how to use computers, they will be able to utilize the computers in their classrooms as a teaching aid (Piotrowski, 1992).

Definitions

Computer Training - training that includes how computers work, the basic functions of a computer, and utilization of a computer in the classroom as a teaching aid (Piotrowski, 1992).

School-Based - courses offered by schools in a computer room or laboratory (Zammit, 1992).

Teachers' Use of Computers - teachers' ability to utilize computers in their classroom as a teaching aid (Piotrowski, 1992).

Delimitations

This study will focus only on middle school teachers who teach grades six through eight in a suburban school in Essex County, New Jersey. Because of the length of this study, possible attendance problems may arise. Teachers who miss two classes will not be counted in the results of the study.

CHAPTER II

REVIEW OF RELATED LITERATURE

Many articles have been written and many studies have been conducted in the last several years with respect to computer technology in the classroom, teacher training in computers, and teacher use of computers in the classroom. In looking for quality research for this study, the researcher used the following descriptors: teachers, training, computers, attitudes, and staff-development. These descriptors were used in the ERIC Database System (1992-1996) and the PsycLIT Journal Article Database System (January, 1990-September, 1996). The researcher also used the reference sections from these searches to find other quality research that deal with this study. The research dates back to 1985 when computer technology was finding its way into schools.

The researcher used America On-Line and Planet Access (Internet) to find the most up-to-date research regarding the focus of this study. The AltaVista and Yahoo search engines were used with the above descriptors in this endeavor.

Studies Dealing with Teacher Training

In Susan Piotrowski's essay (1992) she states how computer training for teachers is "not only a good idea, [but] it is vital to their success in the classroom and their students' success in life after they finish school." The

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essay mentions how students who do not have computer skills will be "disadvantaged" and that these skills are not "strictly limited to the hardware and software of computers."

The researcher found Susan Piotrowski's essay to be directly related to this study because she discussed teacher training in computers, instruction to students on how to use computers, how teachers will be able to utilize the computers in their classroom as a teaching aid, and her support of teacher training in computers and teachers' use of computers as a teaching tool.

In Shermis, Quintana, and Estes's paper (1990) two basic themes were discussed: "1) political and social issues in integrating new information technologies into the educational system, and 2) technical difficulties in integrating new information technologies into the educational system."

The researcher found Shermis, Quintana, and Estes's paper to be directly related to this study because they showed that there is a "critical deficiency" in teacher training to use new technology. They concluded that "[effective implementation] of new technology to promote learning remains a critical concern" and that "teachers must have options to choose technological instructional materials and [have] flexibility to implement the materials according to individual teaching styles and circumstances." The paper outlined "training and staff development needs, the process involving teachers, programs which might be implemented for large-scale training efforts, and funding mechanisms." The authors made recommendations and suggestions that will be

used in this study which might be used to prevent this "deficiency."

Wild's article (1996) identified a problem, in Australia, that student-teachers and teachers alike have been "arranged in a hasty marriage [with] technology within an unsatisfactory time-span." Wild explained that pre-service courses are usually ignored and that these courses are needed "for individuals to make sense of this communication: that is, blending the computer into the professional life of its user, making the computer respond to the real needs of the user rather than vice versa." Wild stated that there is a "failure of purpose." There is "[an] assumption made that student-teachers and teachers need to know how to use computer technology without first asking why they need to know and importantly, what they need to know..." Wild alleged that there is a "failure of method" and a "failure of meaning" with respect to pre-service courses.

This researcher found Wild's article crucial to this study because in his conclusions he attempted to "rationalize" the failure of student and beginning teachers use of computers in schools. This thesis will mention a few of Wild's suggested methods to overcome the "failure of information technology education, particularly at [the] pre-service level."

Outen (1994) described using an inservice training workshop to provide training for teachers to address a problem many teachers have by not "using computers to enter course grades, generate referrals, keep attendance and

complete other administrative tasks, and not increasing their computer skills." She concluded that there are many problems, from frustration to time restraints, that contribute to teachers' failure to use computers for classroom management. She listed six recommendations to help schools plan inservice training for teachers.

The researcher found Outen's paper to be related to this study because she discussed six recommendations for the problems teachers have by not using the computer as a tool for classroom management. Her recommendations will be applied in this thesis to teachers' computer training and teachers' computer use.

In Hannafin and Savenye's article (1993), two basic ideas were expressed. The first idea looked at some of the reasons why elementary and secondary teachers do not use computers and their resistance to it. The second idea looked at "the changing role of the teacher who does not use the computer." A hypothesis was included to suggest that "society's expectations of educational outcomes play a role in determining the success of a technological innovation like the computer."

The researcher found Hannafin and Savenye's article to be pivotal for this study because they discussed several theories regarding teachers' resistance to microcomputers, teachers who have successfully integrated microcomputers into their classrooms, teachers' resistance to their "new role" in the classroom, and their conclusions regarding teachers' resistance to microcomputers. Hannafin and Savenye's

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theories regarding teachers' resistance, teachers' successful integration, and teachers' resistance to their "new role" will be used in this study.

Studies Dealing with Teacher Use of Computers as a Teaching Tool

Zammit's article (1992) examined which factors were perceived by secondary school teachers using computers "as part of their teaching (class users) as facilitating or hindering the use of computers in schools and how these factors would be viewed by teachers who were non-class users." Two questionnaires were designed for the teaching staff. One questionnaire was designed for class users, the other questionnaire was designed for non class users. Zammit defined class users as "teachers who used computers with their students as part of their teaching at least once a term." The questionnaire listed a series of statements which teachers were requested to rate using the following scale: (3) considerable, (2) moderately, (1) slightly, and (0) not at all. Teachers were also given the opportunity to write comments (factors) that they thought were relevant. Few teachers took this opportunity to comment. The statements in the questionnaire covered ten areas: personal reasons, pedagogical considerations, access to computers, software, time, students, parents, school policy and administration, computer coordinator, and academic department and other staff. "These areas were grouped together as a series of factors that facilitated or hindered the use of computers."

These two factors, which Zammit explored as conditions that "encouraged" or "would encourage" teachers to start using computers with their students and conditions that "prevented" computer use in the classroom, were examined and summarized.

The researcher found Zammit's article valuable to this thesis because she examined teachers' perceptions of computers and how these factors facilitated or hindered the use of computers in the classroom. This thesis will look at these factors and how they directly relate to teachers' use of computers as an integral part of their teaching or teachers' non-use of computers.

Siegel's article (1995) reported the results of the first national survey of technology staff development in schools, which was conducted in February 1995. Electronic Learning, Instructor, and Middle Years sent out a survey on technology staff development to randomly selected group of their subscribers. The results reported several findings: 1) despite the lip service about the importance of technology staff development, 28 percent of the respondents spend not one penny on it; 2) when asked to describe their most recent offering on integrating technology into the curriculum, 66 percent of the respondents said they gave straight workshops on specific software titles or hardware, rather than on how to use technology as a tool to expand and enrich the curriculum; 3) technology trainers and the teachers they instruct often differ tremendously in their satisfaction about technology training; 4) both participants and trainers

said that not enough time, inadequate hands-on practice, and insufficient follow-up were weaknesses of the programs offered, and 5) though principals are considered gatekeepers for buying technology for their schools, 41 percent of the respondents said their schools or districts do not offer technology staff development for principals.

The researcher found Siegel's article to be of value for this study because her report shows a lack of technology staff development across the country. Her findings also expressed similar concerns regarding the "how to" train teachers in computers and schools, teachers, and administrators who are experiencing problems with training in computers. Siegal recommends several solutions to this problem. This thesis will look at the recommendations and how they directly relate to teacher training and teacher use of computers in the classroom.

Brennan (1991) focused on "increasing elementary teachers' comfort and skill in the use of computer related technology for the purpose of establishing effective integration of instructional technology." She noted that the problem of "inadequate and ineffective use and integration of computer-based instruction was documented by direct observation of the computer lab instructional procedures, and an interview with the school computer specialist." In her recommendations, she suggested the following: 1) specific consideration be given to the available on-site software; 2) ongoing maintenance and enhancement training is a crucial

element to effective application and integration of computer-based learning experiences; and 3) it will be necessary to assess and provide appropriate and meaningful follow-up and hands-on experiences on a regular basis.

The researcher found Brennan's paper directly related to this study because she focused on increasing teachers' comfort and skill in computer related technology so teachers can effectively integrate this technology in instruction. This thesis will look at Brennan's findings and recommendations and apply them to middle school teachers' computer training and computer use in the classroom.

CHAPTER III

METHOD

Subjects

The participants for this study were 19 middle school teachers of grades 6-8 in suburban Essex County, New Jersey. These subjects were enrolled in one out of a possible four classes offered involving teachers' computer use (personal and professional). The individuals met once a week for an hour and a half for six weeks, for a total of nine hours. The teachers who were involved in this study have a minimum of five years teaching experience.

Computer Course

There are four courses offered. Two are offered during the fall months (September through December) and two during the winter months (January through March). The courses offered during the fall months are an introductory computer course and a classroom applications course with an emphasis on elementary science. The courses offered during the winter months were a classroom applications course with an emphasis on science material above elementary and a course called "The Computer as a Teacher's Tool." The computer course to be used in this study was the classroom applications course with an emphasis on science material above elementary. The researcher gained permission from the instructor to include the course in this study (see Appendix A).

Documents

The documents used in this study were written by authors in the field of computer training of educators and computer evaluation. The deciding factor in selecting these documents was that the documents contained statements about computer training, computer self-evaluation, hardware, computer applications and integration, computer literacy, effectiveness of computer training, content of computer course, and relevance of computer course.

The researcher used a pre-test and a post-test. The pre-test was administered to the individuals prior to beginning the course. The pre-test consisted of a questionnaire that was completed by the subjects on a face-to-face basis with the researcher to assess basic computer knowledge and use (see Appendix B). The assessment evaluated the subjects' knowledge of and use of computers in the classroom prior to taking the computer course.

A post-test was used by this researcher at the conclusion of the computer course. The post-test consisted of a questionnaire that was completed by the subjects on a face-to-face basis with the researcher to assess whether the subjects, upon completion of the computer course, now use computers in the classroom (see Appendix C).

An evaluation of the course was also given at its conclusion. This evaluation consisted of a questionnaire (Duquette, 1985) that was used to rate the instructor, rate the course, and to determine if the material the

subjects' learned can be used by teachers in the classroom (see Appendix D). The evaluation was completed by the participants on a face-to-face basis with the researcher.

Survey Questions

The questions for the pre-test and post-test were developed by the researcher from the works of Elizabeth Brennan (1991), Dawn Outen (1994), and Henry Spille, Sylvia Galloway, and David Stewart (1985). The questions for the evaluation were developed by Cheryll Duquette (1985) with some modifications made by the researcher. The focus of the evaluation was to assess if the material the subjects learned can be used by teachers in the classroom. The researcher left out several sections of Duquette's (1985) module evaluation because it did not apply to this study. The sections to be left out dealt with technical aspects of the computer and computer workbook assignments not relevant to this study.

The questions for the pre-test were designed using specific questions from a computer needs assessment for teachers survey (Outen, 1994) and the researcher. The researcher used the following questions from Outen (1994) to assess teachers' computer knowledge and use of computers in the classroom: Question #2, #7, #10-14, #18-19, and #23-24. Also used in the pre-test was Question #2 from a self evaluation of computer skills survey from Outen (1994).

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The questions for the post-test were devised using specific questions from Brennan's (1991) formative/summative evaluation of training survey. The researcher used the following questions from Brennan (1991) to create a survey that determined if the training received by the subjects in the course has affected their use of computers in the classroom: Question #1-2, #4-7, #9-10, #12-13. Also used in the post-test were two questions from Duquette's (1985) module evaluation. One question was taken from the content section and the other question was taken from the general section. One question was used from Spille, Galloway, and Stewart's (1985) article on how to evaluate courseware designed for use in education or training programs for adult learners. Question #1 was used from the Flexibility section of this article.

General Procedure

The researcher used a method similar to Elizabeth Brennan's method (1991). She is a recognized expert in the field of computer training of educators and computer training evaluation. Her method projected outcomes through an analysis and interpretation of results acquired by means of a pre-test and post-test to improve elementary teachers' comfort and skill with instructional technology through school-based training.

The subjects were enrolled in the in-service computer course entitled "Classroom Applications of the Computer" in January, 1997 that was taught by a computer-literate staff

member. This staff member has taught computers for ten years and has led a number of computer workshops and in-service computer programs for faculty members.

The participants were administered the pre-test in December, 1996 prior to the start of the course. From the test the researcher gained insight into the subjects' computer background and whether they already use the computer in the classroom. Each pre-test was numbered. The individual who filled in the questionnaire was assigned that number. The researcher sat with each subject until all the questions were answered. An attendance sheet was left for the instructor and the subjects, with their assigned number, left a check mark under the date of the class attended.

The computer course met once a week for six weeks on Tuesdays in January and February, 1997 from 3:30 PM to 5:00 PM. The course had been scheduled in this manner because there are were no school vacations to interrupt the six-week session.

At the conclusion of the study, the post-test was administered to assess whether the subjects, upon completion of the course, use computers in the classroom.

Data Collection and Analysis

The goal of this study was to suggest that there is a correlation between in-house computer training and middle school teachers' use of computers in the classroom. The researcher collected data from the subjects' pre-test and compared them to the data from their post-tests to determine

if the computer training that the subjects received affected their use of computers in the classroom.

The researcher analyzed the data using a method similar to Earl Ogletree's method of data collection (1984). He is a recognized expert in the field inservice microcomputer training evaluation.

Tables were used to show the subjects' responses to the pre-test and post-test. Table I illustrates how the subjects responded to the survey question by question. This showed the computer background of the participants in the class as a whole. Table II illustrates how the individuals answered the course evaluation survey question by question. Table III determined if the training received in the course affected teachers' use of computers in the classroom based on the answers to the post-test survey questions. The tables were used to illustrate any significance between in-house computer training and middle school teachers' use of computers in the classroom.

Data analysis followed each table to show its findings. This analysis carefully examined the responses of the participants and compared the pre-test with the post-test. Upon completion of the data analysis, the researcher made conclusions and made any necessary recommendations if needed.

CHAPTER IV

FINDINGS

The purpose of this study was to determine if a correlation exists between in-house computer training and middle school teachers' increased use of computers in the classroom.

The participants of this study filled out a questionnaire in December, 1996 prior to the beginning of the computer course. This questionnaire assessed the subjects' knowledge of and use of computers in the classroom up to that time. The teachers who completed the questionnaire have a minimum of five years teaching experience and are between the ages of 30 and 55.

When the data was collected by the researcher, it was compiled using a tally system based on the number of responses for each question. The researcher used a blank questionnaire as the master tally sheet to compile the data. The researcher placed a tally mark in the appropriate space according to each subject's response. The responses were tabulated and the results from the questionnaire can be found in Table I.

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TABLE I

RESPONSES TO THE TEACHERS' COMPUTER ASSESSMENT

TOTAL = 19 TEACHERS

Question 1

Please rate yourself on your understanding of computer systems. (Check only one):

Never have used a computer	0
Have just begun to use a computer	2
Have had limited experience with a computer	10
Use a computer fairly frequently	6
Quite competent with a computer	1

	Yes	Sometimes	No
Question 2			
Do you have a computer at home?	13	N/A	6
If yes, Mac 10 IBM 3			
Question 3			
Do you have access to a computer at school?	12	7	0
If yes, Mac 10 IBM 3			
Question 4			
Do you have a computer in your classroom?	18	N/A	1
If no, would you like one?	N/A	1	N/A

Question 5

Please indicate which computer brand you would prefer.

Apple	0
IBM	2
Gateway 2000	0
Macintosh	17
Packard Bell	0
Tandy	0

	Yes	No	Not Sure
Question 6			
Have you taken any computer classes or workshops?	14	5	N/A
If yes, how many?			
1 - 7			
2 - 5			
3 - 1			
4+ - 1			
Question 7			
Do you use the computer as a teaching tool in your classroom?	4	15	N/A
If no, would you like to?	12	2	1
Question 8			
Do you use the computer for record keeping (grades) or progress reports?	11	8	N/A
If yes, what for?			
Both 5			
Grades 3			
Progress Reports 2			
If no, would you like to?	6	2	N/A

	Yes	No	Not Sure
Question 9			
To your knowledge, is the computer equipment or software current?	1	8	10

Question 10

I am not involved with computers at my school site because: (Check all applicable statements.)

Administration unsupportable	0
Inservice not offered	4
Inappropriate equipment	0
Not interested	4
No time to train	3
No computer skills	1
Unavailable funds	4
Unaccessable	1

Question 11

Would you like a computer support group for teachers?	13	4	2

Question 12

In what areas of technology would staff training be useful for you? (Check all applicable statements.)

Integrating technology into the curriculum	11
Operating the equipment	11
Selecting appropriate materials	10
Acquire information about educational technology	4
Using technology for record keeping	9
Other _____	0

Question 13

What are your priorities for technological funding? Please rank from highest to lowest with (1) being the highest and (4) being the lowest.

	1	2	3	4
Computer equipment	10	8	1	0
Computer software	1	3	15	0
Staff training	9	7	3	0
Other (please specify)	N/A	N/A	N/A	N/A

Question 14

I would rate my expertise or knowledge of computer literacy as: (check only one.)

significant	1
satisfactory	10
inadequate	7

as it relates to skills required for appropriate utilization and integration of computers in the middle school setting.

Question 15

What problems do you perceive in order to increase the use of computers in the classroom? (Most common problems are listed.)

- computers not accessible
- computers not available
- need more computer teachers
- not enough computer training
- not enough funding
- not enough interest
- not enough skill or know how
- not enough time

The findings in Table I show that the majority of the participants had limited experience with a computer (63%), while the minority of the participants had used a computer fairly frequently (37%). The computer system that the subjects were most familiar with was Macintosh (85%),

although three subjects were more familiar with an IBM (15%). The majority of the subjects felt unsure about the current condition of computer equipment and software (52%).

Record keeping, such as grades, and progress reports were the subjects' uses for the computer (57%). Of the eight participants who do not use the computer for the aforementioned, six participants would like to learn (75%). The majority of the group would like to have a computer support system for teachers (68%).

The majority of the subjects felt that computer equipment and staff training are the top two priorities for technological funding. Computer software came in a distant third.

The computer course used for this study was a classroom applications course with an emphasis on science material above elementary school age. The computer course met once a week for six weeks on Tuesday afternoons in January and February 1997 from 3:30 PM to 5:00 PM. The instructor of the course was a former computer teacher who is computer-literate and is knowledgeable about the school district's available hardware and software. He has led a number of computer workshops and in-service computer courses for faculty members.

The instructor used a computer lab fitted with 20 computers as well as a mobile computer unit for demonstration purposes. The content of the course covered packaged applications, Logo Writer, Internet, advanced word processing, and science CD-ROMs.

Many times, the objectives for a class session were not met in the allotted time and objectives for one class session were covered in several sessions. Because of the questions by the participants, their varying computer backgrounds, and other factors, the course did not progress at a "middle ground" computer level for the subjects.

During CD-ROM demonstrations, the researcher also found the instructor too advanced for the participants' level of expertise and the subjects were not able to digest what was on the screen. In addition, the objectives stated at the beginning of the class often were not met because of the questions posed by the subjects regarding CD-ROM programs. The instructor did not allow time for the participants to experience CD-ROM programs for themselves. That is, participants were not given a hands-on opportunity to use a CD-ROM program by themselves for experimentation and perusal.

To determine the effectiveness of the course as to whether the needs of the participants were met, a post-test was given upon the completion of the course. When the data from the post-test was collected by the researcher, it was compiled using a tally system based on the number of responses for each question. The researcher used a blank questionnaire as the master tally sheet to compile the data. The researcher placed a tally mark in the appropriate space according to each subject's response. The responses were tabulated and the results from the questionnaire can be found in Table II.

TABLE II

RESPONSES TO THE TEACHERS' COMPUTER COURSE EVALUATION

TOTAL = 19 TEACHERS

The participants used the following rating scale for their answers:

1 = Strongly Agree
2 = Agree
3 = Disagree
4 = Strongly Disagree
5 = Not Applicable

	1	2	3	4	5
Question 1					
I will be able to use what I learned in this course.	4	14	1	0	0
Question 2					
Objectives were clearly communicated.	1	12	6	0	0
Question 3					
Material covered was relevant to the session objectives.	3	15	1	0	0
Question 4					
Instructor used a variety of educational approaches.	0	5	14	0	0
Question 5					
Level of difficulty and the content were reasonable.	3	13	3	0	0

	1	2	3	4	5
Question 6					
The materials and delivery were appropriate, relevant, and helpful.	0	17	2	0	0
Question 7					
Instructor was well-prepared and organized.	1	12	6	0	0
Question 8					
Instructor was knowledgeable in content presented.	6	12	1	0	0
Question 9					
Instructor contributed effectively to my learning.	1	14	4	0	0
Question 10					
Equipment and site facilities were appropriate.	10	9	0	0	0
Question 11					
Directions for assignments were clear.	0	9	5	0	6
Question 12					
I generally liked taking this course.	3	14	2	0	0
Question 13					
The course flexible enough to serve the intended range of computer users.	2	15	2	0	0

	1	2	3	4	5
Question 14					
After taking the course, I now have a better understanding of how to use the computer as a teaching tool.	3	14	2	0	0

Question 15

What did you like MOST about the training? (All responses are listed.)

- usable ideas
- hands-on
- variety
- individual computer usage
- something new
- an array of topics
- more at ease about computers
- relevant techniques
- peer-helpers
- non-threatening environment
- appropriate to needs
- CD-ROM programs
- word processing

Question 16

What did you like LEAST about the training? (All responses are listed.)

- pace was too slow
- boring
- not enough practice time
- disorganization
- sitting too long at screen
- noise level
- skipped around too often
- time of day of course
- too difficult
- too repetitive

Question 17

How will you use the training in your classroom? (All responses are listed.)

- record keeping (grades)
- use in math class
- personal use
- science CD-ROM's
- word processing
- graphing
- use in social studies class
- making worksheets
- Internet (if hooked up)
- spreadsheet

Question 18

Do you have any additional comments or remarks? (All responses are listed.)

- more sessions
- more training
- Internet access for classrooms
- follow up course
- more CD-ROM programs

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Table II shows that the majority of the participants will be able to use what they learned in the course (94%). Also, the majority of the class felt the instructor was well-prepared, organized, and knowledgeable. The majority of the subjects generally liked taking the course (73%). The same percentage (73%) now have a better understanding of how to use the computer as a teaching tool. Table II depicts a wide variety in responses with what the subjects liked most and least about the training.

Table III compares the training received in the course and how it affected the participants' use of computers in the classroom. The categories in the table were divided into three categories: course objectives, course content, and teaching needs. This table shows the responses of the participants' needs as indicated in the post-test. The questions of the post-test were grouped together to fit into the above categories. The data for the course objectives was based on the responses from Questions #1-3, and #7; course content, the responses from Questions #4-6 and #8-13; and teaching needs, the responses from Question #14. The data presented in Table III shows the responses to the relevancy of the course in using computers to enhance classroom instruction.

TABLE III

RELEVANCY OF COMPUTER COURSE

TOTAL = 19 TEACHERS

	Relevant	Not Relevant	N/A
Course Objectives	81%	18%	0%
Course Content	76%	19%	3%
Teaching Needs	89%	11%	0%

The data in Table III illustrates that the majority of the participants found the course objectives, course content, and teaching needs relevant to their needs.

CHAPTER V

DISCUSSION

The researcher set out to determine if in-house training does affect, positively or negatively, middle school teachers' use of computers in the classroom as a teaching tool.

Based on the pre-test results, 63% of the participants have just begun to use or have had limited experience with a computer. Of those surveyed, 58% felt that staff training would be useful in computer equipment operation and integration of technology into the curriculum. According to Susan Piotrowski (1992), computer training for teachers is not only a quality idea, but also vital to their success in the classroom and their students' success in life after they finish school. Many teachers received no computer training or they received very little training in college before they started their teaching careers. It is imperative that teachers receive some type of computer training either in college or at the beginning of their teaching career. Piotrowski (1992) suggests that this training include both how computers work and the basic functions of a computer. She adds that, with proper training, teachers can not only instruct their students in how to use computers, but they also will be able to utilize the computer(s) in their classroom as a teaching aid. Teachers need to know and understand the basic functions of a computer before they can pass these skills along to their students.

A problem that occurred was that many of the participants had no prior training on a computer before taking the course. Also, many had not used a computer to enhance their teaching prior to taking the course. These teachers have been teaching for a minimum of five years not using technology year after year. Shermis, Quintana, and Estes (1990) concur that teachers must have options to choose technological instructional materials and have the flexibility to implement the materials according to individual teaching styles and circumstances. However, it is feared that if these teachers are given "options", they will opt not to use technological instructional materials and continue to do what they always have done in the past because they are comfortable with it.

According to Elizabeth Brennan (1991), increasing teachers' comfort and skill level with computer-related technology for the purpose of establishing effective integration of instructional technology is extremely important. In-house computer training must first deal with the comfort level of the user. If the user is not comfortable, than he will not be comfortable using the computer in the classroom. Martyn Wild (1996) identified the problem of student-teachers and teachers alike being arranged in a hasty marriage with technology within an unsatisfactory time-span. Many school districts hire consultants or computer specialists to train staff in a short period of time, usually in one all-day workshop or in two to three after-school workshops, then expect immediate implementation

of the material in the classroom. Courses such as these are usually ignored because teachers are overwhelmed and inundated with computer material that they may not know where to start. Wild (1996) concludes that courses are needed for individuals to comprehend this type of communication; that is, to blend the computer into the professional life of its user and making the computer respond to the real needs of the user rather than vice versa. He further notes that an assumption is made that student-teachers and teachers need to know how to use computer technology without first asking why they need to know and, just as importantly, what they need to know. Teachers and computer technology are thrown swiftly together without thinking of how teachers will respond. Some teachers do not respond kindly to methodologies that are forced on them; the response is usually negative.

Upon completion of the course, the post-test indicated that 73% of the subjects felt that they will be able to use what they learned in the course. Of those surveyed, 73% felt they now have a better understanding of how to use the computer as a teaching tool and generally liked taking the course.

This chapter discusses the results of the study as it relates to the research of various experts in the fields of teacher training in computers and teacher use of computers as a teaching tool.

There are possible solutions to addressing the problem of teachers not using computers in the classroom as a teaching tool. While reading the current literature on this topic, the researcher found several solutions that would be appropriate to this problem.

The results of the pre-test indicate that 63% of the subjects have had limited experience with computers, let alone using the computer in the classroom as a teaching tool. These results support Piotrowski's (1992) conclusion that most of our current teachers were not trained in computers... and have not received any, or at least very little, computer training since starting their teaching careers. A possible solution she discussed was the importance of developing training programs to address the actual need of the teachers. To create increased interest with staff members, computer courses need to be designed with the actual needs of the teachers in mind. This will enable teachers to feel comfortable with learning about computers, as well as feeling a sense of purpose because what they learn directly affects them.

The subjects had the opportunity to respond to pre-test questions that surveyed their knowledge of computer equipment (hardware) and software currency, as well as reasons for not involving themselves with computers at their school site. Over one-half of the participants (52%) felt unsure about how current the equipment and software was, while 42% felt that the equipment and software is not current.

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Hannafin and Savenye (1993) stated that poorly designed software (and hardware) are reasons for not using computers. If teachers are not comfortable with the hardware and software, then they most certainly will not use it in the classroom.

In addition, teachers need to become part of the selection process with respect to hardware and software. Many teachers are kept out of the decision-making process and then are forced to use the new hardware or software in some way. Being involved in the selection of hardware and software is one solution for getting and keeping teachers involved in this process.

The pre-test indicated a number of reasons for lack of teacher involvement with computers. The top three responses were: no inservice offered, no interest, and unavailable funds. Outen (1994) reported that the only way teachers will be able to acquire the knowledge they need to use technology is in inservice training. This can solve the problem of inservice courses not being offered. Interest needs to be generated within the teaching staff so everyone is involved with computers. It is the opinion of the researcher that a lack of interest in computers could be a result of a fear of computers, otherwise known as "computerphobia." Hannafin and Savenye (1993) discussed how fear is often cited as a reason for teacher resistance, even preventing some teachers from using any form of technology in the classroom. Outen (1994) discussed ways to address "computerphobia," such as having the teacher become familiar with the computer and emphasize

hands-on training. Outen (1994) also explained that being sensitive to the anxiety that many teachers hold toward technology helps to ensure success.

Of those surveyed, 68% want a computer support group for teachers. A computer support group is a wonderful way for teachers to help each other and constantly learn from one another. Much of the research indicated many ways to organize or start a computer support group within the school setting. White (1995) suggested creating an infrastructure of continuous teacher support through recruiting volunteers, absorbing 30 hours of training over a six-week period, then sending them back to help fellow teachers learn basic computer competencies in the context of the classroom. This researcher suggests taking the idea one step further. After several "sessions" with staff members, have the volunteers all meet to discuss the various teacher computer abilities in each school in the district. This will present an overview of common problems staff members have with computers, while also focusing on solutions to strengthen the computer literacy of the staff in the district.

Of those surveyed, 57% felt integrating technology into the curriculum and operating the equipment were areas of technology that staff training would be useful. Piotrowski (1992) stated that if it appears the teacher needs only factual knowledge about the computer and how it works, then we need to supply this. It is imperative that teachers have a basic working knowledge of a computer. Hannafin and Savenye (1993) discussed how there are many teachers who have

successfully integrated computers into their classrooms. However, they stated that the interactive nature of the computer and its tremendous capacity for enabling student-centered activities and exploration has required a fundamental shift in the role of the computer-using teacher. The role of the teacher has changed from being teacher-centered to what Hannafin and Savenye (1993) calls "coach", "organizer", "initiator", or "diagnostician". In reality, the role of the teacher has not changed just by using a computer in the classroom. Hannafin and Savenye (1993) suggested that the change occurs only to the extent to which a shift of responsibility to the learners occurs.

The results of the post-test indicate that 94% of the participants feel that they will be able to use what they learned in the course and 73% now have a better understanding of how to use the computer as a teaching tool. Brennan (1991) concluded that increasing elementary teachers' comfort and skill level in the use of computer-related technology for the purpose of establishing effective integration of instructional technology is essential. According to the post-test, 89% of the subjects felt that the computer course was flexible enough to serve the intended range of computer users. This is an important factor in increasing teachers' comfort and skill level in the use of computers. If teachers are at ease using computer hardware and software, then they will feel confident using computer hardware and software in the classroom as a teaching tool. These results support Zammit's (1992) theory that teachers' perceptions of

computers either facilitate or hinder the use of computers in the classroom.

The subjects had the opportunity to respond to post-test questions that surveyed what they thought of the course with respect to course objectives being met, level of course difficulty, appropriateness of equipment, and a knowledgeable instructor. Of those surveyed, 68% felt that the objectives were clearly communicated and met. This data would support Zammit's (1992) conditions (factors) that "encouraged" or "would encourage" teachers to start using computers in the classroom.

The post-test indicated that 84% of the participants thought the level of course difficulty and content were reasonable. Brennan (1991) suggested that training held was to reduce teachers' anxiety and technophobia, as well as including technology with a focus on the capabilities of computer-based learning experiences. This researcher concludes that the course difficulty was at a level that was challenging for the beginning computer user. However, it was not at a level that would be frustrating for the subject. It is the opinion of this researcher that the participants did not feel "overwhelmed" when learning about computer hardware and software during the course.

Of those surveyed, 100% of the subjects felt the equipment and site facilities were appropriate for the course. This researcher believes that the suitable equipment and site facilities plays a significant role in teachers' comfort level. This data supports Brennan's (1991) theory

regarding teachers' comfort and skill level in computer-related technology.

The post-test shows that 94% of the subjects felt that the instructor was well-prepared, organized, and knowledgeable in the content presented during the course.

Siegal (1995) concluded that there is a lack of technology staff development across the country. She stated that technology trainers and the teachers they instruct often differ tremendously in their satisfaction about technology training. This researcher agrees that there is a lack of staff development in technology. However, this researcher disagrees with Siegal (1995). Based on the data, the participants were very satisfied with the instruction given in the course and the instructor in general. Also, 89% of the subjects generally liked taking the course. It should be noted that Siegal (1995) reported the results of the first national survey of technology staff development, which was conducted in February 1995. This researcher believes if another national survey was conducted, the results would be different, largely in part to the commitment many school districts are making in enhancing technology staff development.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to determine if a correlation exists between in-house computer training and middle school teachers' increased use of computers in the classroom. A need exists for this study because it has been shown that as society continues to rely more and more on computers, it will be difficult to get a job in today's marketplace without computer knowledge. Teachers need to become part of this computer age and get on "the information superhighway" so their students will be prepared for the 21st Century.

Many articles have been written and many studies have been conducted in the last several years about computer technology in the classroom, teacher training in computers, and use of computers in the classroom. The research applied in this study dates back to 1985 and deals with teacher training and teacher use of computers as a teaching tool. Many of the articles studied the factors that facilitate or hinder teachers' use of computers in the classroom, as well as deficiencies in teacher training to use new technology.

The subjects used in this study were 19 middle school teachers of grades 6-8 in a suburban school in Essex County, New Jersey. The participants were enrolled in a classroom applications computer course with an emphasis on science

material above elementary during the winter months (January through March, 1997).

The documents used for this study were written by authors in the field of computer training of educators and computer evaluations. The deciding factor in selecting these documents were that the documents contained statements about computer training, computer self-evaluation, hardware, computer applications and integration, computer literacy, effectiveness of computer training, content of computer course, and relevance of computer course.

A pre-test, post-test, and computer course evaluation were used. The pre-test assessed and evaluated the subjects' knowledge of and use of computers in the classroom prior to taking the computer course. The post-test examined whether the subjects, upon completion of the computer course, now use computers in the classroom. The computer course evaluation determined if the material the subjects learned can be used by teachers in the classroom.

The researcher used a method similar to Elizabeth Brennan's method (1991). She is a recognized expert in the field of computer training of educators and computer training evaluation. Her method projected outcomes through an analysis and interpretation of results acquired by means of a pre-test and post-test to improve elementary teachers' comfort and skill with instructional technology through school-based training. The researcher applied this method to middle school teachers' comfort and skill with instructional technology through school-based training.

The researcher analyzed the data using a method similar to Earl Ogletree's method of data collection (1984). He is a recognized expert in the field of inservice microcomputer training evaluation. Tables I and II show the responses to the pre-test and post-test respectively. Table III presented the teachers' feelings on training received in the course and how it affected teachers' use of computers in the classroom based on the answers to the post-test survey questions. The tables showed if any significance exists between in-house computer training and middle school teachers' use of computers in the classroom.

Conclusions

The results of the post-test indicated that 94% of the participants will be able to use what they learned in the course and 73% now have a better understanding of how to use the computer as a teaching tool. This researcher believes that the responses to the post-test were significantly influenced by the subjects' goals and responsibilities to utilize computers as a teaching tool in the future.

The participants responses were further supported by their comments regarding how they will use the training in the classroom:

1) record keeping (grades)
2) science CD-ROM's
3) graphing
4) spreadsheets

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5) Internet (if hooked up)

6) word processing

7) math class

8) social studies class

9) worksheets

10) personal use

Table III illustrates that 81% of the participants found the course objectives relevant to their needs, while 76% of the subjects found the course content relevant to their needs, and 89% of the participants found the course relevant to their teaching needs.

The results of the study suggest that a correlation exists between in-house computer training and middle school teachers' use of computers in the classroom. The majority of the subjects felt that the instructor was well-prepared, organized, and knowledgeable. Of those surveyed, 73% liked taking the course and the same percentage (73%) now have a better understanding of how to use the computer as a teaching tool. From the results of the pre-test, post-test, and computer course evaluation, this researcher concludes that the participants of this study did, in fact, benefit from the training they received. Time will only tell if the subjects will put into practice what they have learned.

The subjects were able to make any additional comments or remarks regarding the training they received or computers in general. Several participants commented on how, in the immediate future, this district will replace the Macintosh computers now in use with IBM computers. This researcher

feels this to be significant because all of the training that has taken place in the past, including this computer course, has been done with Macintosh computer equipment and software. If this is going to be the case, it is the opinion of this researcher that all computer training on Macintosh computer equipment should cease because the training will no longer be of use to teachers once the IBM computer system is in place. Practically all of the middle school staff will have to be retrained to effectively use the new computer hardware and software in the classroom. However, this researcher acknowledges that the familiarity of the Macintosh computer system teachers have acquired over the years will be of some value because there will be a transfer of computer knowledge to the IBM computer system.

The results of this study suggest that many of the subjects have limited experience with a computer (see Table I). However, once the computer course concluded, many of the participants had a better understanding of how to use the computer as a teaching tool (see Table II). This researcher believes that the in-house computer training had a positive effect on the individuals who were in the class (see Table III).

This researcher concludes that one of the factors that played a significant role in the subjects' learning was the non-threatening environment of the course. Many of the participants commented that the course was appropriate to their needs, the course was "user-friendly", and that the course was hands-on which made them more at ease about

computers. The subjects are less "computerphobic" after taking the course.

Recommendations

After an analysis of the findings, this researcher has several recommendations. First, computer instruction should be individualized as much as possible between the learner and the instructor on the system the school district is using (i.e. Macintosh or IBM). This will enable the learner to get the "maximum" out of each session and address specific problems as they arise. Second, there should be a strong emphasis on hands-on experience with computer hardware and software. Allowing for the learner to experience the hardware and software first hand will allay their fears regarding computers. Third, a computer support system is needed to give the learner an outlet for problems that may develop. Instructors can keep in touch with the learner's common problems and needs and address them on an individual basis. Teachers need the opportunity to share what they know and what they do not know. Fourth, teachers need to have release time for staff development with computers on an individual basis. Teachers need to be encouraged to use computers as a teaching tool. Fifth, teachers need to have access to computer hardware and software. Previewing software is a crucial element in affording teachers the opportunity to view the software and find the best programs to use with their classes.

The researcher suggests taking this study one step further in the future. After the completion of the computer course, conduct a follow-up study during the next school year to see if the participants are using what they learned the previous year. This researcher feels it necessary to assess teachers' use of computers as a teaching tool and to provide meaningful follow-up on a regular basis to monitor and evaluate the progress of the participants. Also, it will allow for making any necessary modifications for future computer courses.

This is an exciting time for teachers. Using computers as a teaching tool means enhancing an already enriched curriculum. However, preparation and training of teachers in using computers in the classroom is vital. It is imperative that teachers are ready and willing to access information from "the information superhighway" and understand its application in the classroom. Teachers need to be open to the potential of computers in the classroom as a teaching tool and realize that training is not only worthwhile, it is vital to their success in the classroom and their students' success in life after school.

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APPENDIX A

REQUEST FOR PERMISSION FROM INSTRUCTOR

James Vopal
Grover Cleveland Middle School
Academy Road
Caldwell, NJ 07006

November 21, 1996

Dear Mr. Woudenburg:

I am presently enrolled in the Master of Arts program at Caldwell College. This year, 1996-1997, I will be writing my thesis. I will examine the correlation between in-house computer training and middle school teachers' use of computers in the classroom.

I would like permission to use the teachers who sign up for the course you are teaching in the spring entitled, "Classroom applications of the computer (with emphasis on science material above elementary)" as the subjects for my study.

Thank you in advance for your cooperation.

Sincerely,

James Vopal

APPENDIX B

TEACHERS' COMPUTER ASSESSMENT QUESTIONNAIRE

PURPOSE

The following questions have been designed to assess teachers' computer knowledge and use of computers in the classroom. A summary will be made from the responses and will be compared with a similar questionnaire upon the completion of the in-house computer course.

PLEASE ANSWER THE FOLLOWING QUESTIONS:

1. Please rate yourself on your understanding of computer systems (Check only one):

   Never have used a computer _____
   Have just begun to use a computer _____
   Have had limited experience with a computer _____
   Use a computer fairly frequently _____
   Quite competent with a computer _____

   Please identify the computer system with which you are most familiar: _____

2. Do you have a computer at home?

   Yes_____ What type?_____ No_____

3. Do you have access to a computer at school?

   Yes_____ Sometimes_____ What type?_____ No_____

4. Do you have a computer in your classroom?

   Yes_____ What type?_____ No_____

   If you do not have a computer in your classroom, would you like one?

   Yes_____ No_____ Not Sure_____

5. Please indicate which computer brand you would prefer.

_____Apple _____Macintosh _____IBM _____Tandy

_____Packard Bell _____Gateway 2000

6. Have you taken any computer classes or workshops?

Yes_____ How many?_____ No_____

7. Do you use the computer as a teaching tool in your classroom?

Yes_____ No_____

If you answered no, would you like to?

Yes_____ No_____

8. Do you use the computer for record keeping (grades) or progress reports?

Yes_____ What for?_____ No_____

If you answered no, would you like to?

Yes_____ No_____

9. To your knowledge, is the computer equipment or software current?

Yes_____ No_____ Not Sure_____

10. I am not involved with computers at my school site because (Check all applicable statements):

Administration unsupportable	_____
Inservice not offered	_____
Inappropriate equipment	_____
Not interested	_____
No time to train	_____
No computer skills	_____
Unavailable funds	_____
Unaccessable	_____

11. Would you like a computer support group for teachers?

Yes_____ No_____

12. In what areas of technology would staff training be useful for you? (Check all applicable statements)

Integrating technology into the curriculum	_____
Operating the equipment	_____
Selecting appropriate materials	_____
Acquire information about educational technology	_____
Using technology for record keeping	_____
Other _____	_____

13. What are your priorities for technological funding? Please rank from highest to lowest with (1) being the highest and (4) being the lowest.

Computer equipment	_____
Computer software	_____
Staff training	_____
Other (please specify)_____	_____

14. I would rate my expertise or knowledge of computer literacy as (check only one)

significant	_____
satisfactory	_____
inadequate	_____

as it relates to skills required for appropriate utilization and integration of computers in the middle school setting.

15. What problems do you perceive in order to increase the use of computers in the classroom?

APPENDIX C

TEACHERS COMPUTER COURSE ASSESSMENT

PURPOSE

The following questions have been developed to determine if the training received in the course has affected teachers' use of computers in the classroom. This information will be compared with the responses from the first questionnaire.

PLEASE ANSWER THE FOLLOWING QUESTIONS:

Rate the following statements according to the following scale:

1 = Strongly Agree
2 = Agree
3 = Disagree
4 = Strongly Disagree
5 = Not Applicable

	1	2	3	4	5
1. I will be able to use what I learned in this course.					
	—	—	—	—	—
2. Objectives were clearly communicated.					
	—	—	—	—	—
3 Material covered was relevant to the session objectives.					
	—	—	—	—	—
4. Instructor used a variety of educational approaches.					
	—	—	—	—	—
5. Level of difficulty and the content were reasonable.					
	—	—	—	—	—

	1	2	3	4	5
6. The materials and delivery were appropriate, relevant, and helpful.	—	—	—	—	—
7. Instructor was well-prepared and organized.	—	—	—	—	—
8. Instructor was knowledgeable in content presented.	—	—	—	—	—
9. Instructor contributed effectively to my learning.	—	—	—	—	—
10. Equipment and site facilities were appropriate.	—	—	—	—	—
11. Directions for assignments were clear.	—	—	—	—	—
12. I generally liked taking this course.	—	—	—	—	—
13. Was the course flexible enough to serve the intended range of computer users?	—	—	—	—	—
14. After taking the course, I now have a better understanding of how to use the computer as a teaching tool.	—	—	—	—	—

15. What did you like MOST about the training?

16. What did you like LEAST about the training?

17. How will you use the training in your classroom?

18. Do you have any additional comments or remarks?

APPENDIX D

TEACHERS' EVALUATION OF INSTRUCTOR AND COURSE

PURPOSE

The purpose of this survey is to rate the instructor and the course. Information from this survey will be used to determine if the material learned is applicable by teachers in the classroom. This information will not be shown to the instructor.

Please use the following scale to respond to each item:

SA - Strongly Agree
A - Agree
N - Neither Agree nor Disagree
D - Disagree
SD - Strongly Disagree
NA - Not Applicable

Please CIRCLE the appropriate response for each question.

Objectives

I understood the objectives of this course.

SA A N D SD NA

The objectives helped me understand what I had to learn.

SA A N D SD NA

Content

The content of this course was given in a logical order.

SA A N D SD NA

The course was given at the right level of depth.

SA A N D SD NA

There was enough information given in this course.

SA A N D SD NA

The language used in this course was difficult to understand.

SA A N D SD NA

The examples were helpful to understand the concepts.

SA A N D SD NA

There were enough examples given.

SA A N D SD NA

The summaries helped me remember important points.

SA A N D SD NA

There were enough summaries given.

SA A N D SD NA

Directions for question response were clear.

SA A N D SD NA

Directions for assignments were clear.

SA A N D SD NA

The worksheets/hand-outs were easy to understand.

SA A N D SD NA

Information given in this course is useful in my teaching.

SA A N D SD NA

Information given in this course is not useful in my teaching.

SA A N D SD NA

Questions

The questions helped gauge whether I knew the concept

SA A N D SD NA

There were enough questions asked during the course.

SA A N D SD NA

Explanations given after my responses helped me understand concepts.

SA A N D SD NA

Course Instructor

I was aware of the role of the course instructor.

SA A N D SD NA

The instructor was available when needed.

SA A N D SD NA

The instructor responded quickly to my questions and comments.

SA A N D SD NA

The instructor's knowledge of the material seemed adequate.

SA A N D SD NA

General

I generally liked this course.

SA A N D SD NA

I generally found all materials easy to use.

SA A N D SD NA

I generally found all assignments appropriate for this course.

SA A N D SD NA

What did you like most about the course?

What did you dislike most about the course?

What parts were confusing?

What parts were boring?

Will the information in this course help you enhance your teaching? Why or why not?

Do you have any other additional comments about this course?

APPENDIX E

EMAIL LETTER TO MARTYN WILD

Subj: Masters Thesis
Date: Sun, Sep 29, 1996 8:23 PM EDT
From:
To: m.wild@cowan.edu.au

Dear Mr. Wild:

I am presently enrolled in a Masters of Arts program at Caldwell College (USA). I am working towards a Master of Arts in Curriculum and Instruction. I will be writing a thesis on the correlation between school-based computer training and middle school teachers' use of computers in the classroom.

I found your paper entitled, "Technology Refusal: Rationalizing the failure of student and beginning teachers to use computers" on the Internet. After reading the abstract, I found that your paper would be of great value to my research. Please send me a copy of your paper. I would like permission to use portions of your paper in my thesis with the understanding that you will receive full credit in appropriate documentation.

If you know of any other information that would be of value to my research, please let me know. Thank you in advance for your cooperation.

Sincerely,

James Vopal

APPENDIX F

PERMISSION FROM MARTYN WILD VIA EMAIL

Subj: Re: Masters Thesis
Date: Mon, Sep 30 1996 20:21:47
From: m.wild@cowan.edu.au
X-From: m.wild@cowan.edu.au (Martyn Wild)
To:

File: masterst.txt (33626 bytes)

James:

Here is the paper, in electronic form, and without formatting -- its probably quicker to get it to you this way, rather than send a paper copy. It has since been published in:

Wild, M. (1996). Technology refusal: Rationalising the failure of student and beginning teachers to use computers. British Journal of Educational Technology, 27(2), 134-143.

Full paper:

Technology refusal:
Rationalising the failure of student and beginning teachers to use computers

Martyn Wild
Faculty of Education
Edith Cowan University
Churchlands Perth
Western Australia 6018

tel 619 273 8022
fax 619 387 7095
email m.wild@cowan.edu.au

BEST COPY AVAILABLE

APPENDIX G

EMAIL LETTER TO OLTC

Subj: OLTC Report
Date: Tue, Oct 1, 1996 7:05 PM EDT
From:
To: inform@oltc.edu.au

To Whom It May Concern:

I am presently enrolled in a Master of Arts program at Caldwell College (USA). I am working towards an M.A. in Curriculum and Instruction.

I found an OLTC report entitled, "Teachers, Educational Computing and Professional Development" on the Internet. I would like your permission to use this report in certain sections of my thesis. Please inform me of the author(s) of this report so I may give proper citation(s) and credit.

Thank you for your attention to this matter.

Sincerely,

James Vopal

APPENDIX H

PERMISSION FROM SARAH REED (OLTC) VIA EMAIL

Subj: Re: OLTC Report
Date: Wed, Oct 2, 1996 02:08:12
From: inform@oltc.edu.au
X-From: inform@oltc.edu.au (OLTC Information Services)
Reply-to: inform@oltc.edu.au
To:

Dear James:

OLTC is very happy for you to use the report listed provided that the source is acknowledged. Note OLTC is the corporate author of it's published reports.

Thank you for the feedback on how you are using the report.

Good luck with your thesis!

Sarah Reed
Senior Information Officer

==========
Open Learning Technology Corporation Ltd
Information Services
Science Park
Laffer Drive
Bedford Park
South Australia 5042

Tel: 08 406 2200
Fax: 08 201 7810
Email: inform@oltc.edu.au
URL: http://www.oltc.edu.au/